1145-35-2731 **Niles Armstrong*** (niles@math.ksu.edu) and **Ivan Blank**. *Nonconvexity and Compact Containment of Mean Value Sets for General Elliptic Operators.*

In his Fermi Lectures on the obstacle problem, Caffarelli stated a mean value theorem for second order uniformly elliptic divergence form operators with the form $L := D_i a^{ij}(x) D_j$. This theorem is a clear analog to the standard mean value theorem for Euclidean balls for the Laplacian, with the only difference being the sets over which the averages are taken. I will discuss the initial regularity results that were known for these sets, show a new compact containment result, and finally give an example of an operator with smooth coefficients and nonconvex mean value sets. (Received September 25, 2018)